Edinburgh/RAL Shaping Amplifier/Discriminator (RAL109)[1]	
Shaping:	CR–$(RC)^2$, $\tau = 0.5\mu$s
Input:	Differential, impedance 100Ω
Pole-zero adjustment:	40–60μs
Output:	0–10V (into 1kΩ) positive unipolar
Output impedance:	100Ω
Gain[2]:	Minimum 5 (200MeV=10V)
	Maximum 50 (20MeV=10V)
Amplifier noise[3]:	<45μV rms. (referred to input at maximum gain)
	(4.9±0.3)keV FWHM
Integral non-linearity:	<0.1%
Discriminator:	Leading edge
Threshold[4]:	<1.5–30% (referred to analogue output)
Resolution:	<500ps rms. ($\geq 2\times$ discriminator threshold)
Output:	ECL
Output width[5]:	30–200ns
Power supply[6]:	±15V, ±6V
Power output:	∼1.25W
Circuit:	4.2cm × 7.7cm surface mount PCB

1. 8 shaping amplifiers/discriminators are mounted on a 6U-Eurocard PCB mother-board within a 19″ KM6 sub-rack. The maximum capacity of a KM6 sub-rack is 128 shaping amplifiers/discriminators.

2. Gain adjusted by changing two DIL resistor packages on PCB mother-board.

3. Voltage figure measured with HP3400A wideband (10Hz–10MHz) rms. voltmeter. EG&G Ortec 572 Amplifiers at equivalent settings give a value of (3.8±0.4)keV FWHM. Noise figures quoted are $(\bar{x} \pm 2\sigma)$.

4. Single 20-turn potentiometer adjusts common threshold of all eight channels on PCB mother-board.

5. ECL pulse width adjusted by changing one DIL resistor package/capacitors on PCB mother-board.

6. Nominal values.